

2. (once amended) A CT system in accordance with Claim 1 wherein said CT system further comprises an x-ray tube, said tube configured to produce a spatially variant x-ray energy distribution in a Z direction.

3. (once amended) A CT system in accordance with Claim 1 wherein said CT system further comprises an x-ray tube on a rotating gantry, said x-ray tube configured to emit x-rays at a first x-ray spectral range and a second x-ray spectral range different from the first x-ray spectral range during the rotation of said gantry during a single scan.

4. (once amended) A CT system in accordance with Claim 1 wherein said CT system further comprises:

an x-ray source positioned to emit x-rays toward said detector array; and

at least one x-ray energy filter positioned between said source and said detector array.

5. (once amended) A CT system in accordance with Claim 4 wherein said x-ray energy filter is positioned between said x-ray source and an object being imaged.

6. (once amended) A CT system in accordance with Claim 4 wherein said x-ray energy filter is positioned in an x-ray collimator between said x-ray source and an object being imaged.

7. (once amended) A CT system in accordance with Claim 4 wherein said x-ray energy filter is positioned between an object being imaged and said detector array.

8. (once amended) A CT system in accordance with Claim 4 wherein said x-ray energy filter comprises a plurality of discrete filter elements separated by intervening air paths and oriented in a Z direction.

9. (once amended) A CT system in accordance with Claim 4 wherein said x-ray energy filter comprises a variable filter.

10. (once amended) A CT system in accordance with Claim 8 wherein said discrete filter elements each have substantially the same x-ray absorption property.

11. (once amended) A CT system in accordance with Claim 8 wherein one of said discrete filter elements has a first x-ray absorption property and one of said discrete filter elements has a second x-ray absorption property different from the first.

12. (once amended) A CT system in accordance with Claim 4 wherein said x-ray energy filter comprises at least one of a stepped filter, a sloped filter, a plurality of K edge filters, and a set of paired K edge filters in a Z-axis direction.

*Amix*  
13. (once amended) A CT system in accordance with Claim 1 further comprising an x-ray source outputting a single x-ray spectrum wherein said first detector cell detects a different x-ray subspectrum than said second detector cell.

14. (once amended) A method for scanning an object, said scanning comprises scanning an object by at least one of:

scanning the object while varying a peak kiloelectronvolt to an x-ray tube;

scanning the object with a filter such that a plurality of x-ray spectra are received by a detector array; and

scanning the object such that elements of a detector array discriminate between a plurality of x-ray spectra and generate signals based on the x-ray spectra.

15. (once amended) A method for determining the presence of an analyte in an object with a computed tomographic (CT) imaging system, said method comprising:

receiving first data regarding a first x-ray spectral range from a first detector cell;

receiving second data regarding a second x-ray spectral range different from the first x-ray spectral range from a second detector cell different from the first detector cell; and

determining spectral information from the first data and the second data.

16. (once amended) A computed tomographic (CT) imaging system for performing a CT scan, said CT system comprising:

a detector array comprising a plurality of detector cells;

an x-ray source positioned to emit x-rays toward said detector array; and

a processor operationally coupled to said detector array, said processor configured to:

receive first data regarding a first x-ray spectral range from a first detector cell;

receive second data regarding a second x-ray spectral range different from the first x-ray spectral range from a second detector cell different from the first detector cell; and

determine spectral information from the first data and the second data.

17. (once amended) A CT system in accordance with Claim 16 wherein said x-ray source comprises an x-ray tube configured to produce a spatially variant x-ray energy distribution in a Z direction.

18. (once amended) A CT system in accordance with Claim 16 further comprising a rotating gantry, said x-ray source configured to emit x-rays at a first x-ray spectral range and a second x-ray spectral range different from the first x-ray spectral range during the rotation of said gantry during a single scan.

19. (once amended) A CT system in accordance with Claim 16 further comprising a plurality of x-ray energy filter elements<sup>1</sup> separated by intervening air paths and oriented in a Z direction.

*Scrit*  
20. (once amended) A CT system in accordance with Claim 19 wherein at least one said x-ray energy filter is positioned between said x-ray source and an object being imaged.

21. (once amended) A CT system in accordance with Claim 19 wherein at least one said x-ray energy filter is positioned between said detector and an object being imaged.

22. (once amended) A CT system in accordance with Claim 19 wherein said discrete filter elements each have substantially the same x-ray absorption property.

23. (once amended) A CT system in accordance with Claim 19 wherein one of said discrete filter elements has a first x-ray absorption property and one of said discrete filter elements has a second x-ray absorption property different from the first.

---

**Remarks**

Submitted herewith is a Submission of Marked Up Claims. Specifically, the claims have been amended to correct typographical errors and better comport with the originally filed specification. Accordingly, no new matter has been added.